

DOCUMENT RESUME

ED 413 124

RC 021 208

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TITLE Ethical Frameworks, Moral Practices and Outdoor Education.
PUB DATE 1996-00-00
NOTE 18p.; In: Coalition for Education in the Outdoors Third Research Symposium Proceedings (3rd, Bradford Woods, Indiana, January 12-14, 1996); see RC 021 207.
PUB TYPE Information Analyses (070) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Educational Principles; *Ethics; Foreign Countries; Group Dynamics; Moral Development; *Outdoor Education; *Values
IDENTIFIERS Chaos Theory; *Conceptual Frameworks; Environmental Ethic

ABSTRACT

Insights from quantum physics and chaos theory help create new metaphors about ethical frameworks and moral practices in outdoor education. The seemingly straightforward concept of values is analogous to the initial simple nonlinear equation of a fractal. The value claims of outdoor education--trust, cooperation, environmental awareness, self-awareness, freedom, justice, community, respect--are often interwoven within the very structure and outcomes of programs. If there are repeated iterations of the initial equation (values and value claims), the fractal shapes of ethical frameworks emerge. Ethical frameworks are complex sets of value claims, rationales, and rules that guide moral reasoning, decision making, and behavior. Such complexity implies that various forms, ranging from experiential activities and artistic creations to scholarly essays and research, are necessary to explore ethical frameworks and moral practices of outdoor education. Prominent themes related to outdoor ethical frameworks are: (1) outdoor education research focused on individuals and discrete links among attitudes, knowledge, affect, and behavior; (2) prominent scholarship about outdoor ethical frameworks is becoming more prominent; (3) research findings on moral development in psychology and education indicate the development of moral reasoning is complex; (4) moral practices encompass relational characteristics: love, friendship, compassion, caring, passion, and intuition; (5) spiritual journeys, traditions, and insights are an important aspect of relating to others; and (6) an individual or group can be ethical only when there is mutual material interaction and critique. Understanding the relationships and processes applicable to outdoor values and ethical frameworks requires embracing their complexity. Continuing with physics metaphors from field theory, six ways of embracing complexity are proposed. Contains 124 references. (SV)

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Discoveries and insights from quantum physics and chaos theory help create new metaphors about ethical frameworks and moral practices in outdoor education. Using concepts such as fractals, fields, and strange attractors, we explore new ways to view research results, scholarly writings, and creative endeavors related to outdoor education. In addition, we evaluate four themes related to the present ethical discourse in outdoor education and sketch new directions for moral practice.

KEYWORDS: *Ethical frameworks, outdoor education, moral practice, chaos theory, mutual critique.*

INTRODUCTION

The image of fractals returned again and again as we wrestled with the mounds of information related to ethical frameworks, moral practices and outdoor education. Fractals are surprisingly simple patterns replicating to produce infinite levels of complexity. Shorelines, vegetation disbursement, crystal formations, and leaf patterns are natural demonstrations of this phenomenon (Figure 1). We discovered that our topic—ethical frameworks and moral practices of outdoor education followed a similar pattern; the more we looked, the more complexity and details we discovered. Like fractals, the complexity and details began to be the very essence of the beauty, the strength, and the diversity as well as the challenge. We discovered how difficult it is not to be certain; how uncomfortable we were with chaos. We quickly wanted to provide structure and categories to the information. With time, shifting patterns and shapes emerged from the unending sources of information that provide initial views of the fractal nature of

ethical frameworks and moral practices in outdoor education.

THE FRACTAL NATURE OF ETHICAL FRAMEWORKS, MORAL PRACTICE AND OUTDOOR EDUCATION

We suggest that the seemingly straightforward concept of values is analogous to the initial, simple, non-linear equation of a fractal. Values are ideals, customs or institutions of society toward which individuals or groups have an affective regard, and value claims are statements about worth (see Table 1). These values may be positive, such as freedom or respect, or negative such as greed and cruelty. The value claims of outdoor education are often interwoven and implied within the very structure and outcomes of programs—trust, cooperation, environmental awareness, self-awareness, freedom, justice, character, community, and respect (Stern & Dietz, 1994).

The values woven into narratives and (auto)biographies of naturalists, explorers, adventurers, indigenous people (Carson, 1962;

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Grey Owl, 1975; Lopez, 1986; Muir, 1979) provide the basic sustenance for moral discourse and practice in outdoor education. Values are often implied in the stories about people, expeditions, events, and places or the directions to complete an outdoor skill or task. The guideposts and motivating forces behind Kurt Hahn's work include growth, character, conflict resolution, and positive social interactions (Richards, 1990). Early childhood experiences with the outdoors or moral practice emerge as vital elements in developing life commitments to the natural environment (Bennis, 1989; Beringer, 1995; Cohen & Horm-Wingerd, 1993; Harvey, 1989-90; Miles, 1986; Palmer, 1993; Sebba, 1991). Climbing instructions or raft guiding procedures rest on assumptions that people should change the natural environment as little as possible (Long, 1993; McGinnis, 1981). The common ground between outdoor recreation, outdoor education, environmental education and experiential education can be found in a value base of respect, social responsibility, self-actualization, justice, and freedom for all living beings and the Earth. Furthermore, these values guide the search for relevant knowledge and appropriate behaviours (Casken, 1992; Tellnes, 1993). For example, the values of respecting the Earth and freedom for individuals have underpinned our efforts to increase the use of appropriate technology and minimum impact techniques, preserve wildlands, and design inclusive outdoor education programs (Morgan, 1993; Schleien & McAvoy, 1989).

If there are repeated iterations of the initial equation (values and value claims), the fractal shapes of ethical frameworks emerge. Ethical frameworks are complex sets of value claims, rationales, and rules that guide behaviour and include the cognitive processes (moral reasoning) that lead to decisions and actions (see Table 1). Leopold's (1949) Land Ethic, Dustin, McAvoy, & Schultz's (1995) philosophical foundation for the park and recreation profession, Hunt's

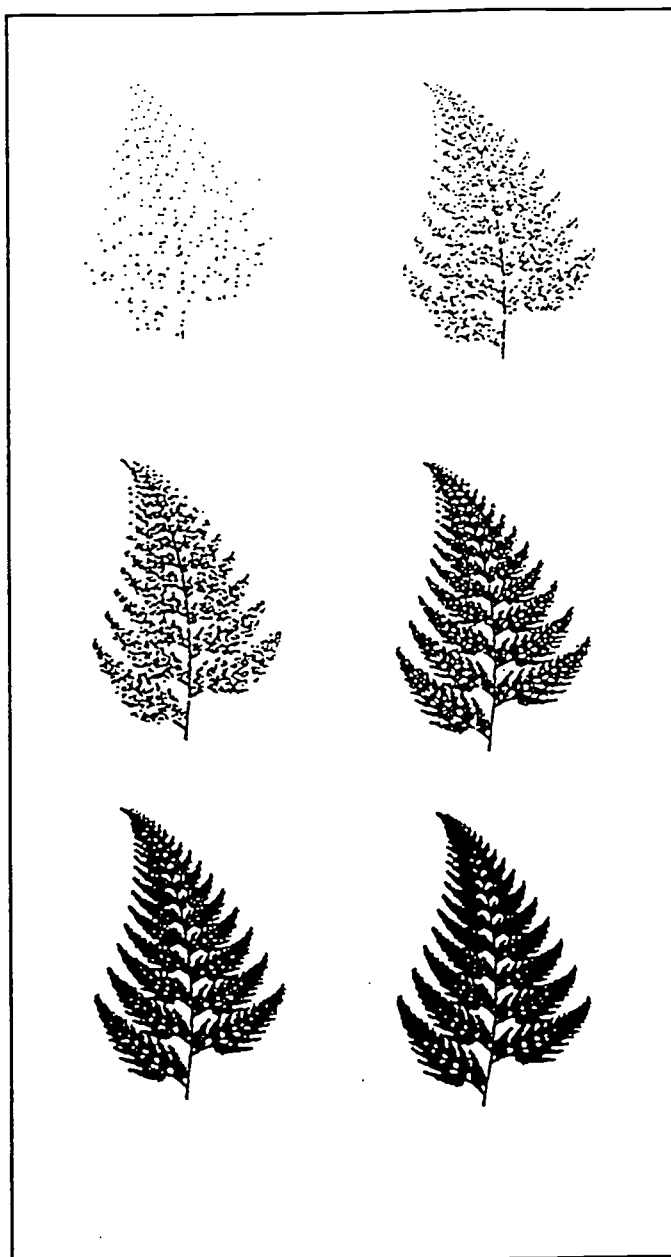


Figure 1. Example of natural fractal: fern leaves. This computer-generated fern is the product of Michael Barnsley's Chaos Game. Random iterations of a few simple equations work together to create the overall shape of the fern. Complexity and detail emerge from simplicity as the result of chaos and order working in concert together.

(1986) presentation of ethical dilemmas, and Mitten's (1985) feminist critique are examples of discussions about ethical frameworks. Given the challenges of a diverse and changing

TABLE 1
Examples of Value Claims, Ethical Frameworks, and Moral Practices

Values	Value Claims (Statements of Worth)	Ethical Framework (System of Propositions and Premises)	Moral Practice (Intersection of Behaviour and Reflection)
Trust	Cooperation is the best way.	Leopold's Land Ethic	Reflective action
Virtuous Person	Frogs have intrinsic value.	Rawl's Concept of Justice	Self-exploration
Nature Centers	The land is valued at \$2 million dollars.	Utilitarian cost/benefit analysis	Making visible the unconscious

society, discussions about ethical frameworks are essential for moving toward a congruency between values and behaviour. Repeating the iterations once again leads us to moral practice, that which pertains to right conduct or behaviour. Moral practice is the systematic application of values and ethical frameworks to one's life, or the transition of values and ethical frameworks into practice (see Table 1). Moral practice implies an ability to reflect and adjust behaviour in accordance with the ethical frameworks, "right thought with right action." Moral practice, or ethically-based behaviour (Matthews, 1996), is a complex dynamic that involves awareness of ethical issues; content knowledge; critical thinking skills and dispositions; psychological attributes related to locus of control, affective responses, responsibility, and gender roles (Redford, McPherson, Frankie-wicz, & Gaa, 1995; Samuels, 1990); knowledge of strategies for change; mindfulness and reflective abilities; and social networks (Sia, Hungerford & Tomera, 1986; Sochting, Skoe, & Marcia, 1994). Flanagan (1991) and Corral-Verguego (1993) suggest that ethical and moral ideals need to be developed in accordance with social psychological realities and cognitive abilities to think critically. Therefore, work in the fields of psychology, philosophy, religion and education is relevant to our questions about ethics and outdoor education (Buzzelli, 1993; Gessner et al, 1993; Gilligan, Ward, & Taylor, 1988; Weingberg, Yacker, Orenstein, & De-

Sarbo, 1993; Wilson, 1995; Wygant & Williams, 1995).

Ethical frameworks and moral practice emerge from narratives and stories (e.g., The Land Ethic or ecocentric worldviews) and from careful, philosophical inquiry (Dustin, McAvoy, & Schultz, 1995; Fox, 1994; McAvoy, 1990; Nash, 1987; Wurdinger, 1995). From similar experiences, diverse and sometimes contradictory ethical frameworks evolve. Robert S. MacArthur (1995), in his Kurt Hahn Address, stated: "When we, who would see ourselves as intent upon creating a just and compassionate world, find ourselves polarized over issues of diversity, inclusion, awards, or anything else, for that matter, then we have not stepped beyond our comfort zones to explore new ground (p. 32)." It is not that the intent of outdoor educators is not pure or our people not committed and good. Outdoor educators need to venture further onto pathways that explore, develop and clearly articulate the ethical frameworks that guide our various moral practices, rather than just identify appropriate behaviours. When such explorations are structured to include meta-cognitive and critical thinking content and skills, peer interactions, and mutual critique, outdoor education practitioners enhance moral practice (Weber, 1993). It is not necessary to create a unified position for all to belong or adhere to. In fact, we must make a subtle distinction between belonging to a group or adhering to a position, which implies certain restrictions and norms,

and *inclusion*, where people can function within the totality as individuals with self-respect grounded in their differences, similarities and interdependencies (Mitten, 1985).

Such complexity implies that a variety of forms, ranging from experiential activities and artistic creations to scholarly essays and research, are necessary to explore the ethical frameworks and moral practices of outdoor education. First, there are *value pieces* that focus on values. These pieces are often personal reflections, descriptions of program ideals, choreographed movements, "talks" or presentations, belief systems, fictional and poetic accounts, outdoor experiences, or anecdotal accounts. Second, there are *scholarly pieces* that adhere to the standards and requirements related to scholarly discourse specifically in the areas of philosophy, history, social theory, critical theory, feminist critique, and critical thinking. These pieces are grounded in specific disciplines and/or structure requirements that allow the readers to judge the worth of the piece in relation to a standard as well as the position presented. Third, there are *research pieces* that adhere to the specific requirements related to qualitative and quantitative research processes and standards. We do not wish to imply that any of these are more valuable than the other; in fact, we see them as different fractal shapes necessary for nurturing values, ethical frameworks and moral practice, as well as preserving the creativity, diversity, complexity and beauty essential to outdoor education. We do think that the level of quality and multi-disciplinary interactions will affect how these forms enhance ethical reasoning, support moral practice, and encourage interdisciplinary alliances and mutual critique.

FRactal Themes Relevant to Ethical Discourse in Outdoor Education

We suggest that there are six prominent themes directly or indirectly related to ethical frameworks and moral practices in outdoor education. First, research in outdoor education has primarily focused on individuals and discrete connections between attitudes, knowledge, affect, and behaviour. Outdoor education pro-

grams can increase the outdoor knowledge of the participants (Mio, Thompson, & Givens, 1990; O'Connor & Tindall, 1990; Peters, 1994). The studies have indicated that experiences in the outdoors and experiential learning related to the natural environment, with discussions structured for critical thinking and metacognition, lead to an increase in knowledge and moral reasoning (Day, 1993; Swanson & Hill, 1993; Wainryb & Turiel, 1993). Attitudes, knowledge, affect and behaviour seem to be related, but the research has been unable to definitively identify a causal relationship (Arcury, 1990; Armstrong & Impara, 1991; Finger, 1994; Gudgion & Thomas, 1991; Knapp, 1995). The link with behavioural change still eludes researchers, and it may be that behaviour can be changed without an associated improvement in knowledge, internalization of ethical frameworks, or moral reasoning. (Benton, 1993; Blaikie, 1993; Gigliotti, 1992; Hines, Hungerford, & Tomera, 1987; Self, Schrader, Baldwin, & Wolinsky, 1993; Unger, 1994).

Second, the scholarship about ethical frameworks relevant to outdoor education is becoming more prominent. Dustin, McAvoy & Schultz (1995), Fox (1991), Hunt (1995), McAvoy (1990), Mitten (1995, and Phipps (1993) have been strong voices for articulating rationales relevant to our conceptual frameworks and moral practice. Recent interviews of outdoor leaders and current discourse about outdoor education values suggest that there is potential for enhancing and extending these discussions among ourselves and across disciplines (Evernden, 1992; Gass, 1993; Gessner, et al., 1993; Herrera, 1992; Horowitz, 1994; Pilgrim, 1980; Priest & Baillie, 1987).

Third, the research on moral development in psychology and education indicates that the development of moral reasoning is complex, involves various factors (e.g., discipline strategies, pedagogical techniques, peer interactions, educational levels, and community connections), and is directly applicable to our research in outdoor education (Dyck, 1993; Keef, 1993; Keen, 1991; Lebus, Schleifer, Caron, & Daniel, 1993; Miller, 1994; Schultz & Stone, 1994; Yount &

Horton, 1992). Furthermore, studies in other fields suggest that typical components of outdoor education programs (e.g., experiential learning, peer interactions, direct experiences, group discussions, critical thinking and intellectual perspective taking) enhance moral reasoning (Axelrod & Lehman, 1993; Batchelder & Root, 1994; Derksen & Gartrell, 1993; Greenwald-Robbins & Greenwald, 1994; Haste, 1993; Langford, 1992; Tudin, Straker, & Mendolsohn, 1994). There is much work to be done to highlight moral reasoning associated with outdoor education programs and ethically-based behaviour in the outdoors. This work may be best explored through collaborative research, mutual critique, and critical dialogue about ethics and the natural environment.

Fourth, moral practice also encompasses relational characteristics: love, friendship, compassion, caring, passion, and intuition. Insights from the work of Gilligan (Hekman, 1995) and Willett (1995) suggest that moral practice is also grounded in emotions, relationships, and non-verbal interactions. Exploring avenues for identifying these processes, communicating the phenomena, and creating opportunities for the interactions are essential for understanding the totality of moral practice.

Fifth, spiritual journeys, traditions, and insights are an important aspect of relating to others, developing ethical frameworks, and attaining ethically-based behaviours. For many, basic values are embedded in spiritual contexts and practices (Gottlieb, 1995; Shapiro, 1989). The recent surge in interest about various spiritual views of the natural world are important to outdoor education. Not only do these spiritual traditions provide content for programs, but they are highly relevant to constructing a concept of the natural world, refining moral reasoning, and implementing moral practice.

Welch (1990) maintains that an individual or group can be ethical only when there is mutual material interaction and critique, the final theme. Feminist critiques, challenges from African-Americans, commentary by representatives of Indigenous communities, and initiatives rep-

resenting people with disabilities nourish the field of outdoor education (Ashley, 1990; Bersoff & Miller, 1993; Datillo & Murphy, 1987; DiChiro, 1987; Diaz-Guerrero, 1992; Greer, 1992; LaDuke, 1991; Levy, Taylor, & Gelman, 1995; Miller, 1994; McClintock, 1992; Oles, 1992; Sheppard, 1995; Skoe & Diessner, 1994). Through revisiting core values and inviting conflicts, critiques and contradictions to rise to the surface, outdoor educators can strengthen existing or create new ethical frameworks and moral practices (Iwata, 1992; Ostrovsky, Parr, & Gradel, 1992). Many of the critiques focus on outcomes or behaviours (e.g., exclusion, accessibility, or use of language). However, all actions are driven by values, and people choose (although not always consciously) specific behaviours and interactions dependent upon some connection (e.g., through ethical frameworks) with their basic values. Behavioural change that can respond to individual contexts and changing environments requires attention to congruence between ethical frameworks and actions.

WHAT DOES IT ALL MEAN?

We would like to suggest that the fractals of ethical frameworks and moral practices in outdoor education function as complex, dynamic, and changing open systems. Furthermore, we believe that we do a disservice to the systems, ourselves, and outdoor education when we simplify the ethical frameworks and moral practices of outdoor education without contextualizing and maintaining the complexity. For that reason, it is important to embrace the complexity, *making visible the basic values, ethical frameworks, moral reasoning and behavioural outcomes related to outdoor education*, including relevant multi-disciplinary and cross-cultural perspectives and research. The patterns that connect humans with the natural world, with other humans, and with ethical discourse and moral practice are vital, sustaining processes. The "now-you-see-it, now-you-don't" quality of attitudes, affect, knowledge and behaviour will continue to drive us crazy as long as we try to decipher cause and effect between well-bounded concepts (i.e., attitudes, knowledge, self-esteem, and behavioural outcomes, among many). It

might be more helpful to explore different variables (e.g., relationships over time, synergistic patterns of behaviour, communities of diversity) in order to learn about the critical points and transition phases in the evolution of ethical frameworks and moral practice for outdoor education. The goal would be not to control, but to increase our intuitions about how the varied systems work and how we can interact with them more harmoniously (Briggs & Peat, 1989). Figure 2 is our *initial attempt* at describing some of the relationships and processes applicable to values, ethical frameworks and moral practices of outdoor education.

WHERE DO WE WANT OR NEED TO GO FROM HERE?

Our search for understanding, control and predictability has led us down numerous paths of practice and research. We as authors are struck with the sentiment expressed by Doug Knapp at the 1996 Council on Outdoor Education Research Symposium: Even as his research moves closer to explaining and quantifying changes in environmentally responsible behaviour that result from educational programs, he has this sense that taking more groups to the top of a mountain at sunset and playing his guitar is just as significant. We suggest that he is tapping into a force or dynamic related to the space and relationships surrounding the mountain, sunset, living beings, guitar, and music; the knowledge about the outdoors; the positive social interactions; the natural environment; and the personal value demonstrations.

Continuing with metaphors from physics, the concept of fields comes to mind (Wheatley, 1992). Field theory was developed as an attempt to explain action-at-a-distance. Magnetic attraction or Newton's and Einstein's different views of gravitational fields are examples of action-at-a-distance. Fields inhabit space, are invisible but nonetheless powerful, and encourage us to think of a universe that resembles an ocean filled with interpenetrating influences and invisible connecting structures. If we think of values, ethical frameworks and moral practices as fields, we believe we have an effective metaphor for un-

derstanding why concepts and programs in outdoor education influence participants, leaders, and observers as well as they do. Simply talking about ethics, sharing values, and participating in activities about ethical narratives and relationships creates fields and inspires action-at-a-distance. The metaphor also changes the nature of our attention in six areas:

1. *Nurture the Human/Natural Connection:* Fundamentally, outdoor education is about connecting humans with the natural world and each other. Outdoor education is often the primary area for connecting humans with the Earth. Science is continually enhancing and deepening our understanding of the natural world, and there continues to be a need to explore, share and discuss how we want to structure and enhance the quality of these relationships. Outdoor educators need to act as grand evocateurs of a reality that enhances the potential for respectful and compassionate interaction among humans and with the Earth. Whether it is connecting with cyberspace (Brookes, 1993), working with inner city youth in the outdoors, preserving wilderness areas, or providing quiet, solitude experiences, outdoor educators must strengthen current strategies and create new strategies that enhance interactions, ongoing relationships, and compassion (Cooper, 1994; Kley Meyer, 1992; Knapp, 1994). By focusing on relationships, researchers and practitioners may discover invisible connections that structure moral practice in the outdoors.
2. *Making Visible and Sharing Ethical Frameworks and Moral Reasoning:* There is an urgent need to articulate ethical frameworks and moral practices that respect the Earth. There is some indication that those individuals who can competently apply critical thinking content and processes to outdoor experiences, embrace complexity and ambiguity, and develop ecocentric ethical frameworks will engage in environmentally responsible behaviour (Glassman, 1994; Thompson & Barton, 1994). We need to

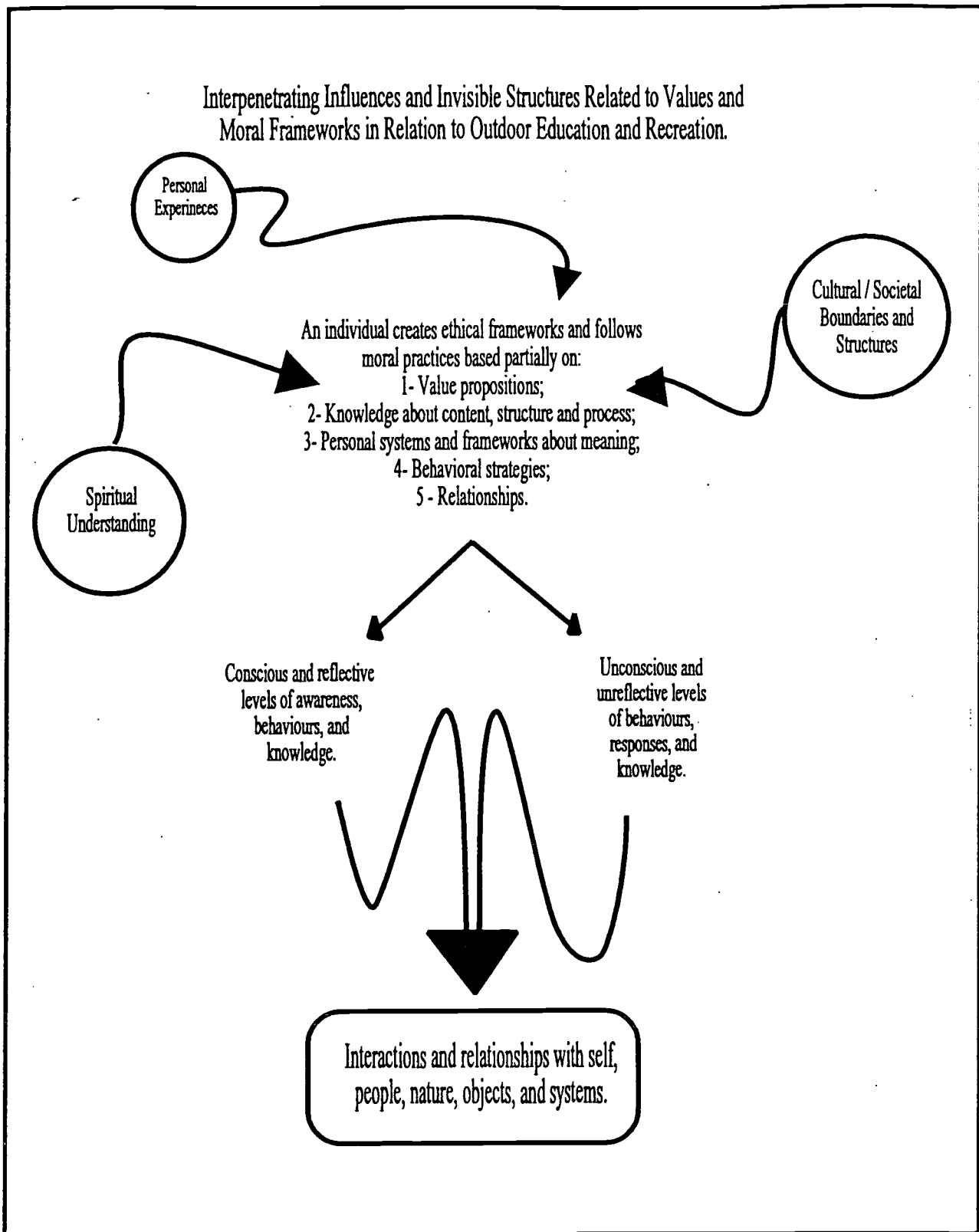


Figure 2. Interpenetrating influences and invisible structures related to values, ethical frameworks, and moral practices in outdoor education.

extend ourselves into scholarly writings, articulate ethical frameworks, enhance reflective capabilities, participate in artistic and intuitive processes, wrestle with complexity, and support appropriate research. These paths of inquiry will require us to develop skills related to other disciplines (e.g., art, philosophy, environmental ethics, feminist critique, religion, ethical leadership, critical theory, history). Since there is some indication that a commitment to ethical practice is a lifelong journey, hearing the stories and assessing the ethical frameworks and practice of others helps us (1) identify the challenges; (2) encounter boundaries of concepts, discourse, knowledge, and individuals; (3) find inspiration and support for the ethical and moral challenges facing outdoor educators; and (4) connect with energy sources to sustain ethical behaviour over time. As individuals share specific ethical narratives, invite others to critique and respond, an "ethical field" will be generated that engenders ethical reasoning and action-at-a-distance in outdoor education.

3. *Spiritual Contexts for Outdoor Education:* Integrating spiritual traditions and perspectives into outdoor education must be coordinated with respect for diversity, "epistemic privilege,"¹ and power relationships (Greeley, 1993; Kanagy & Willits, 1993; Oles, 1992).

¹ "Epistemic privilege" as used in this paper extends the work of Narayan (1988). It is the concept that members of oppressed, marginalized or specific groups have a more immediate, subtle and critical knowledge about the nature of their group's culture, power relations, and experience than people who are non-members of the oppressed group. This claim does not need to imply that the group has clearer or better knowledge. Epistemic privilege claims that these individuals have all the details of the ways in which their oppression and power relations are experienced and of the ways in which the oppression and power relations affect the major and minor details of their social and psychic lives.

4. *Caring and Mindful Relationships Among People and with the Earth:* Some research (Dyck, 1993; Kochanska, 1994; Krebs & van Hesteren, 1994) suggests that the style and discipline strategies of leaders are pivotal for the participants' moral development. Therefore, both ethical leadership and followership in outdoor education becomes a vital enterprise related to sustaining outdoor education, influencing others, and educating the next generation. Ethical leadership and followership will require that scholars and practitioners alike attend to personal development and change (Chaleff, 1995; Flannery & Mary, 1994; Fox, Parsons, Barnett, & Reed, 1995; Grube, Mayton, & Ball-Rokeach, 1994; Kochanska, 1994; Krebs & van Hesteren, 1994; Myers, 1990). Fox and McAvoy's (1995) interviews with outdoor leaders indicated that a "dynamic self-awareness" is a pivotal process. Dynamic self-awareness refers to the quality that an individual is able to reflect about her or himself; to attend to multiple levels of reality; to move between personal and other issues; to choose values of life, compassion and openness; and to make visible the multiple levels of patterns, meanings, interpretations and realities. Through deliberate reflection and writing about experiences, values, and rationales, outdoor educators foster understanding about thinking and behaviour. Furthermore, shared reflections and research provide opportunities for mutual critique and engenders moral practice. Through enhancing information flow, dialogue and reflection about the guiding visions of outdoor education, we create a universe of experiences, information, and relationships (e.g., a field) about ethical frameworks and moral practices in the outdoors. When information and ethical discourse are freely generated and exchanged among ours and other disciplines, we spawn hope and potentials relevant to protecting natural areas and en-

hancing humans' relationships with the Earth.

5. *Mutually Critiqued Ethical Frameworks:* If, as Welch (1990) suggests, we can be ethical only when we materially interact and engage in mutual critique, outdoor educators must explore ethical issues with a multitude of audiences (e.g., ourselves, advocates of opposing positions, scholars from other disciplines, representatives of other cultural backgrounds, and people not normally represented in the dialogues) (Gough, 1993; Miller, 1994). These explorations must attend to standards of critical thinking, respect for diversity and opposition, philosophical propositions, historical analysis, research standards, and social theory among many. We believe that our literature search has demonstrated that many people are concerned about ethical frameworks and moral practices related to the natural world. As an academic field, we need to be a voice for ethical discourse in the discussions of both professionals and scholars. If moral reasoning is nurtured by group interactions, personal experiences, meaningful relationships, structured dialogue, pedagogical strategies, and experiential learning formats situated in the outdoors, outdoor education and outdoor educators have a vital part to play in current dialogues in psychology, critical theory, sociology, business and management, environmental science, and education about ethical development and moral practice in the outdoors.

6. *A Complex Systems Approach:* Finally, we would like to propose that we keep our eyes on the complex nature of the systems of values, ethical frameworks and moral practice in outdoor education, even as we explore individual parts and interactions. If research on moral development is applicable, maintaining complexity also supports the development and refinement of moral reasoning (Tudin, et al., 1994). Again, a concept from quantum physics emerges: the phenomenon called "strange attractors" (Wheatley, 1992). The name is well-suited

for this phenomena of which we understand so little. Strange attractors are basins of attraction that pull a system into visible shape. The area "attracts" energies, potentials and material from many sources and dimensions. Scientists know something will occur and can provide probabilities, but they cannot predict or control what will emerge. We suggest that it is imperative that we create "value attractors" in outdoor education with as many living beings from as many perspectives as possible. The act of drawing information and people into the basin initiates the process: applying research from other areas, sharing outdoor education experiences and research, developing interdisciplinary research teams, submitting outdoor education research for critique in other fields, and entering scholarly dialogues. Table 2 provides a partial list of relevant journals that highlights the immense number of opportunities for accessing "strange attractors." We are indicating a direction to follow and trusting that the metaphors and processes inherent in a new understanding of the physical world will translate to a new understanding of ethical frameworks and moral practices in outdoor education.

COMMITTING TO THE JOURNEY

We certainly struggle to avoid the powerful pull of looking for right answers and certainty. We realize the need for right answers and certainty is a reflection of old habits and paradigms. Trusting the field of outdoor education to generate its own information and self-organize is not easy when you have been trained to trust in the visible. It is disquietingly fascinating to embrace the invisible patterns of energy and connections. We are suggesting a journey of mutual and simultaneous explorations, where solutions are temporary events specific to a context and developed through relationships of persons and circumstances.

Values, ethical frameworks and moral practices embrace the essence and the very best of outdoor education. They are holographs of a dynamic and complex system that nurture both

TABLE 2
Partial List of Relevant Journals

OUTDOOR, ENVIRONMENTAL & EXPERIENTIAL EDUCATION	ETHICAL FRAMEWORKS	MORAL DEVELOPMENT & PRACTICE
Journal of Experiential Education	Environmental Ethics	Environment and Behavior
Journal of Environmental Education	Trumpeter	Journal of Environmental Psychology
Australian Journal of Environmental Education	Interaction	Human Organization
Journal of Adventure Education and Outdoor Leadership	Winds of Change	Journal of Adolescence
Coalition for Education in the Outdoors Research Symposium Proceedings	Akwe'kon Journal	Creativity Research Journal
Environmental Education and Information	Grassroots Development	Developmental Psychology
Legacy	Merrill-Palmer Quarterly	Child and Youth Care Forum
Buzzworm	Hypatia	Communication Research Reports
Pathways: The Ontario Journal of Outdoor Education	Environmental Values	Journal of Applied Communication Research
South African Journal of Environmental Education	Canadian Journal of Philosophy	Journal of Research on Adolescence
Children's Environments	Whole Terrain	Early Education & Development
International Journal of Wilderness	Terra Nova	Journal for Specialists in Group Work
Journal of Natural Resources and Society	Inquiry	American Sociological Review
Parks and Recreation		Teaching of Psychology
Recreation Canada		Psychology: A Journal of Human Behavior
Environment Views		Australian Psychologist
Orion		Journal of Business Research
Borealis		Journal of Social Issues
Environmentalist		Leadership Quarterly
Ecologist		High School Journal
Restoration & Management Notes		Journal of Applied Social Psychology
Geographical Education		Social Development
Earth Ethics		Alberta Journal of Educational Research
Taproot		Child Development
Human Ecology Review		Behavior Analyst
Earthways		Health Promotion International
Journal of Ecoforestry		Cross-Cultural Research
		Youth and Society
		Educational Psychologist
		Canadian Review of Sociology and Anthropology
		International Journal of Adolescence and Youth

human beings and the natural world. Our knowledge embraces parts, such as affect, attitudes, knowledge and behavior, as well as wholes, such as living beings, life-stories, narratives, ethical frameworks, and ecological systems. We return again and again to the concept that it is information that gives order, that prompts growth, that defines what is alive. Information is both the underlying structure and dynamic process that ensures life (Wheatley, 1992). Although we experience life, such as our bodies, as stable forms, our bodies change frequently. Our skin renews itself every month, our liver every six weeks, and our brain every twelve months. In spite of this continual renewal, our bodies remain constant, due to the organizing function of the information contained in our DNA.

At any point in the bodymind, two things come together—a bit of information and a bit of matter. Of the two, the information has a longer life span than the solid matter it is matched with. As the atoms of carbon, hydrogen, oxygen, and nitrogen swirl through our DNA, like birds of passage that alight only to migrate on, the bit of matter changes, yet there is always a structure waiting for the next atoms. In fact, DNA never budes so much as a thousandth of a millimeter in its precise structure, because the genomes—the bits of information in DNA—remember where everything goes, all 3 billion of them. This fact makes us realize that memory must be more permanent than matter. What is a cell, then? It is a memory that has built some matter around itself, forming a specific pattern. Your body is just the place your memory calls home (Chopra, 1989, p. 87).

In outdoor education, we replace the material beings and programs around the values of outdoor education (i.e., the coding information) that seem to remain constant. The ongoing processes of searching, constructing, and sharing information about outdoor education and ethically-based behaviour is our very life. Specifically, outdoor educators need to (1) embrace the

complexity and chaos of ethical frameworks and moral practice in outdoor education, (2) nourish a dynamic self-awareness, (3) make visible diverse ethical frameworks, (4) develop collaborative multi-disciplinary, and cross-cultural teams, and (5) invite mutual critique from people not normally part of the dialogue. Through these actions we will maintain our relationships with each other, with all living beings, and with the Earth as we meet the challenges of a changing world. Like all journeys, this one moves us through both mountains and canyons, the fears of the unknown and the joys of deep recognition. Some shapes and landmarks are already apparent as we re-affirm and re-connect with areas we have traveled before. Others wait to be identified like first descents or ascents. No one, especially us, can say where the journey is leading. But the companionship of us all promises to be fruitful and we can feel the adventurer's excitement rising in us. We look forward to our discussions and working together with people who challenge us and bring new perspectives. We are glad to feel in awe and humbled again.

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